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Woodward-Clyde Consultants

REMOVAL ACTION WORK PLAN

CEDAR CHEMICAL FACILITY
NEAR WEST HELENA, ARKANSAS

for:

Cedar Chemical Corporation
Memphis, Tennessee

April 1990

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1.0 INTRODUCTION

A work plan for the removal of drums and, contaminated soil adjacent to the drums and subsequent soil sampling from a proposed construction area at Cedar Chemical of West Helena, Arkansas, is presented in this document.

The work plan will be completed in three steps. The first step is the handling of drums for offsite disposal. The second step is the removal of contaminated soil adjacent to the drums. The third step is the sampling beneath the removed drums and excavated soil to determine if health-based standards for disposal are exceeded in the remaining soil.

2.0 SITE BACKGROUND

2.1 Site Location

The Cedar Chemical Company facility is located by the intersection of Arkansas Highway 242 and Industrial Park Road near West Helena, Arkansas (See Figure 1). A drum burial area that has been uncovered is located about 500 feet east of the main office building (See Figure 1).

2.2 Site History

During construction activities for the purpose of plant expansion, buried drums were uncovered. The drums were 6 to 12 feet below ground surface. Eight drums were removed upon unearthing. The drums have been analyzed and determined to contain DNBP. The drums were buried around 1972 when the plant manufactured DNBP and (Ansul Corporation). DNBP or 2 (sec butyl) 4,6 dinitrophenol is no longer in use as a pesticide. It is still used as a diamine inhibitor in industrial processes, e.g., to deter polymerization of styrene in industrial processes.

2.3 Site Description

The drum burial area is approximately 15 feet from north to south and 60 feet from east to west and located in the southeast corner of the construction area for plant expansion.

3.0 SCOPE OF WORK

3.1 Drum Handling

Drum handling activities will consist of unearthing the drums. The drums will then be removed and prepared for shipment. Drums in rusty or deteriorated condition compromising container integrity will require overpacking for shipment. Containers will require a characteristic analysis for disposal. Once these results are available, the containers will be labeled, manifested and shipped for offsite incineration.

3.2 Soil Removal

All soil adjacent to the drums and contaminated by concentrations of dinoseb greater than the standard established in the Interim Final RCRA Facility Investigation Guidance (EPA 530/SW-89-031) will then be excavated and placed in containers for disposal. The health-based standard for DNBP in soil is 80.0 ppm. Characteristic analysis of the soil for disposal will also be required. Upon receipt of results, the containers will be labeled, manifested and shipped for offsite disposal.

3.3 Soil Sampling

After drum and soil removal, soil sampling will be performed. This sampling effort will establish the concentration of dinoseb remaining in the soil. The health-based standard

for DNBP in soil is 80 ppm. This concentration will be the criterion to achieve the objective of this remedial effort.

4.0 APPLICABILITY

Prior to the removal of buried drums in the southeast corner of the construction area for plant expansion, two activities will be performed.

The first activity is a magnetometer survey of the construction. area. This area is approximately 250 feet north to south and 200 feet east to west. The survey is to be conducted to determine if other drum areas exist in the plant expansion area. If other areas of buried drums are indicated in the survey, then this work plan including the Health and Safety Plan and Attachment 1 will be applied to the additional buried drum areas. If new hazards are encountered then an evaluation of those hazards will be conducted. An addendum to the Health and Safety Plan and Site Characterization and Drum Disposal Area Delineation Work Plan would address any additional concerns.

The second activity is a soil boring and sampling program to be performed at the perimeter of the known buried drum area. This subsurface characterization will determine if contaminant migration has occurred to the extent of the boring locations. This sampling strategy can be applied to other potentially identified drum burial areas. Soil borings will also be conducted over the entire construction area on a 50-foot grid as well as in the vicinity of the eight removed drums from the drum burial site.

5.0 DRUM AND SURFACE SOIL REMOVAL

Cedar Chemical will dispose of the drums initially discovered during site preparation activities for a plant expansion at the West Helena facility. Soil adjacent to the drums and contaminated with concentrations of DNBP greater than 80 ppm will also be excavated, containerized and transported to a RCRA-permitted facility for disposal.

Once the drums are unearthed, characterization of the contents for disposal will occur. This characterization will be performed to assess the waste streams at the site. The sampling and sample handling will be in accordance with the QA/QC plan in Section 9.0.

5.1 Waste Characterization of Drums for Disposal

The drums will be grouped to consolidate the similar wastes so that composite samples can be taken. This composite sampling will be used for waste stream characterization and manifesting.

5.2 Characterizations of Soil Adjacent to Drums

Cedar Chemical proposes to remove soil beneath and around the drums for characterization and disposal, if necessary. Therefore sampling for characterization will be performed in the areas of concern.

5.3 Analysis of Drum Contents and Contaminated Soil

A sample of visibly contaminated soil and composited samples from each group of drums will be analyzed for the parameters as shown in table below. Analysis required by a off site TSD facility may be characteristics, such as ignitability, reactivity, corrosivity and TCLP. The TSD facility may require other analyses to define physical properties as well.

Number of Samples	Sample Type	Location	DNBP	Analysis Required by TSD Facility
One composite from Each Group of Drums	Drum Content Composite	Each Group	X	X
One composite	Soil Sample	Beneath and Around Drum Area	X	X

5.4 Removal Specifications for Drum and Soil Removal

When the results of the waste stream characterization are received, Cedar Chemical will implement the removal and disposal action step of this project. Cedar Chemical will retain subcontractors for the purpose of packing, overpacking, solidifying and handling drums to be disposed. Soil adjacent to Drums will also be excavated, characterized and drummed for disposal, if necessary. A licensed hazardous waste transporter will be selected for transporting the drums and contaminated soil found adjacent to the drums for disposal. A RCRA-permitted TSD disposal facility will be selected to receive and dispose the waste in an environmentally sound manner.

5.5 Implementation of Drum and Soil Removal

Cedar Chemical will implement the removal action after the subcontractors have been selected, details are confirmed and the subcontractors have mobilized onsite.

5.5.1 Site Preparation. Upon arrival at the site the subcontractor will meet with the WCC site safety officer. The health and safety plan will be discussed and the compliance agreement will be signed by all workers. All health and safety training documentation will be collected from the subcontractors. The subcontractor will set up

a temporary decontamination facility sized to clean the largest piece of contaminated equipment at the BSC location (See Figure 2) within the facility.

The site will be cleared to facilitate drum removal and to expose areas of contaminated soil surrounding the drums for excavation and removal.

5.5.2 Drum Handling. Drum handling addresses the consolidation and/or handling of drummed waste before it is trucked to an offsite facility for disposal. The following procedure will be utilized for handling the drums:

- Each drum will be visually inspected to determine the structural integrity of the drum (note punctures, corrosion, spillage, etc.) and the type of drum (open or closed top). The contents will also be evaluated (volume, physical state, odor, color) and compared to the associated waste profile sheet. Any discrepancies will be noted and resolved.

- Drums in good condition will be transported by front-end loader to the drum staging area. Drums shown to be incompatible with other drums or waste will be segregated and marked at the staging area.

- Drums that are determined to be in such poor condition that they cannot be moved to the staging area will be placed in overpack salvage drums.

- Any spilled material found at the site, at either the drum locations or staging area, will be excavated and placed into a new fiber pack container sized by the disposal facility.

- All drums containing hazardous waste will be labeled, manifested and loaded onto a truck for transport to the offsite disposal facility.

- o The onsite coordinator will then inspect the site and certify that all hazardous drums and spilled hazardous materials have been removed from the site.

5.5.3 Soil Removal. The potentially contaminated soil beneath and around the drums will be removed from the buried drum area, characterized then placed in appropriately sized fiber packs for disposal, if necessary.

5.5.4 Manifesting and Transporting of Drums and Soil. All drums in each category will be manifested then loaded onto a truck and shipped by a licensed hazardous waste transporter in accordance with all DOT and RCRA regulations. The manifesting will be completed to meet the TSD facility's requirements and all applicable state and federal regulations.

5.5.5 Decontamination

Any equipment or personal protective equipment that has come in direct contact with the waste will be deemed contaminated. Equipment involved in the closure of the area will essentially be construction equipment, such as backhoe, bulldozer, front-end loader, etc. Special personal protective equipment will be used and precautions taken as necessary. When practical the subcontractor will use disposable protective equipment. All disposable equipment will be containerized by the subcontractor and disposed of by Cedar Chemical Corporation. Contaminated equipment will be decontaminated at the site. Each piece of equipment will be thoroughly hosed down with high pressure water or steam. The contaminated parts of the equipment will be thoroughly scrubbed with detergent/water solution under pressure. All run-off will be collected in the existing sump at the BSC site (See Figure 2) where the subcontractor is to set up the temporary decontamination facility.

6.0 PROJECT OBJECTIVE SAMPLING

Once excavation of soils beneath and around the drums is complete, soil sampling will be conducted to assess the underlying soils to establish the completeness of remediation. The constituents that may be present in the soils have been identified as DNBP.

All field and laboratory QA/QC will be in accordance with the QA/QC found in Section 9.0 of this document.

6.1 Soil Sampling

Soil samples will be taken at selected locations in the area beneath the drums. Soil samples will be taken utilizing a 3-inch bucket auger. The auger will be advanced to a depth of 6 inches from the surface after excavation of visibly contaminated soil. The soil sample will be placed in sample bottles, appropriately labeled and placed on ice for transport to the laboratory. All equipment will be cleaned in accordance with decontamination procedures before collecting each sample.

All equipment will initially be decontaminated before use and again after each sample is collected. The following decontamination procedures will be employed:

- Steam cleaning
- Washing in a detergent solution (such as Alconox).
- Rinsing with clean water (distilled).

After decontamination, the sample equipment will be wrapped in a foil cover for protection until its subsequent use. All wash fluids will be containerized for disposal by Cedar Chemical.

6.2 Sample Locations

Sampling will be performed on the basis of a 20-foot grid. This grid will require three samples. The sample locations would be sited on the centerline of the 60-foot length. Two samples would be 10 feet from each end and one sample in the center, 30 feet from either end. All samples would be 7.5 feet from either side of the 15-foot width.

7.0 CLOSURE CERTIFICATION AND REPORT

Cedar Chemical intends to achieve a health-based closure of the drum site. The level of concentration of dinoseb must be equal or below the health-based standard for soil of 80 ppm in order to achieve this goal. Upon receipt of analytical results from the project objective sampling, a final report of this project will be submitted. This report will be certified by an independent professional with WCC that the work has been completed in accordance with the work plan.

8.0 AUTHORITY AND RESPONSIBILITY

The following is a description of job responsibilities for this project:

8.1 Project Manager - Richard D. Karkkainen

For this project, the project manager has the following responsibilities:

- To see that the project is executed in accordance with this work plan and to safeguard the interests of Cedar Chemical.
- To see that the project is performed in a manner consistent with the WCC QA/QC program and health and safety program.
- To have an approved Health and Safety Plan prepared and properly implemented for this project.

- To provide the central operating group health and safety officer with project information related to health and safety matters and development of the Health and Safety Plan.
- To implement the Health and Safety Plan.
- To insure compliance with the Health and Safety Plan by WCC personnel.
- To coordinate with the central operating group health and safety officer on health and safety matters.

The project manager has the authority to take the following actions:

- To determine matters relating to schedule, cost and personnel assignments on hazardous waste management projects.
- To temporarily suspend field activities, if the health and safety of personnel are endangered, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.
- To temporarily suspend an individual from field activities for infractions of the Health and Safety Plan, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.

8.2 Health and Safety Officer - Bob Siener

The health and safety officer has the following responsibilities:

- To interface with the project manager as may be required in matters of health and safety.
- To develop a Health and Safety Plan for the project and to submit it to the corporate health and safety officer for approval.

- To appoint or approve a site safety officer to assist in implementing the Health and Safety Plan.
- To monitor compliance with the approved Health and Safety Plan.
- To assist the project manager in seeing that proper health and safety equipment is available for the project.
- To approve personnel to work on this site with regard to medical examinations and health and safety training.

The health and safety officer has the authority to take the following actions:

- To suspend work or otherwise limit exposures to personnel, if a health and safety plan appears to be unsuitable or inadequate.
- To direct personnel to change work practices, if they are deemed to be hazardous to health and safety of personnel.
- To remove personnel from the project, if their actions or condition endangers their health and safety or the health and safety of co-workers.

8.3 Site Safety Officer - Brett Smith

The site safety officer has the following responsibilities:

- To direct health and safety activities onsite.
- To report safety-related incidents or accidents to the project manager and central operating group health and safety officer.
- To assist the project manager in all aspects of implementing the Health and Safety Plan.
- To maintain health and safety equipment onsite, as specified in the Health and Safety Plan.

- To perform health and safety activities onsite, as specified in the Health and Safety Plan, and report results to the project manager and the central operating group health and safety officer.
- To limit access to the site to authorized personnel.

The site safety officer has the authority to take the following actions:

- To temporarily suspend field activities, if health and safety of personnel are endangered, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.
- To temporarily suspend an individual from field activities for infractions of the Health and Safety Plan, pending further consideration by the central operating group health and safety officer.
- To suspend work and notify Cedar Chemical security of unauthorized personnel entry into the site.

9.0 QA/QC PLAN

The object of the Quality Assurance/Quality Control program is to insure field and data quality objectives.

The project objective soil sampling will employ the following methods to achieve quality analytical data to assess the site status after drum and soil removal and appropriateness of health based closure designation.

9.1 Documentation of Sample Acquisition

All information pertinent to field observations and sampling will be recorded in the logbook with consecutively numbered pages. Entries in the logbook will include at least the following:

- Sketch of the disposal area with a grid
- A grid of the site area
- Purpose of sampling
- Number and approximate volume of samples taken
- Exact location of sampling point on grid
- Description of sampling point
- Date and time of collection
- Collector's sample identification number(s)
- References, such as maps or photographs of the sampling site
- Field observations
- Weather conditions

The documentation in the logbook will be sufficient to reconstruct the sampling situation without relying on the collector's memory.

Proper sample preservation is important in retaining the sample characteristics prior to analysis. Sample preservation is documented on the chain-of-custody form and also in the field logbook. The proposed analytical methods required that the sample be kept on ice until transferred to the laboratory.

Once the sample has been transferred to the appropriate laboratory sample container, a sample label will be completed and affixed to the sample container.

9.2 Sample Labeling

Each sample will be labeled and sealed properly immediately after collection.

Sample labels are necessary to prevent misidentification of samples. The label will include at least the following information:

- Project identification
- Name of collector
- Date and time of collection
- Sample location
- Collector's sample number, which uniquely identifies the sample

9.3 Chain-of-Custody

In addition to the field logbook, each sample will be recorded on a chain-of-custody record. An identifying code will be assigned to each sample and this code will be used on the chain-of-custody and in the logbook to ensure that the sample description is identifiable. A brief description of the sampling point will also be placed on the chain-of-custody form.

Chain-of-custody forms will become the permanent records of all sample handling and shipment. If standard sampling procedures are not used, a written justification of each deviation will be placed in the project file. Upon completion of sampling, the sample will be prepared for shipment in accordance with the applicable sampling instruction, including preservation, labeling, and logging.

The person collecting a sample will initiate document(s) at the source of sample and start the chain-of-custody procedure.

An example of the chain-of-custody that will be used is shown in Figure 3.

The sample will be kept in limited access or locked storage at the proper temperature until custody is relinquished from the site and formal documentation of the transfer is completed.

Upon each transfer of custody, the person involved will verify sample numbers and condition and will document the sample acquisition and transfer. The field sampler will properly package the samples, indicate the shipping, obtain documentation of the shipment, such as certified mail receipt or bill of lading number, and sample identification records (one of each with the shipment, one of each by mail to the laboratory, and one of each returned with field records).

On transfer of custody of the samples to the analytical laboratory, the field sample custodian will sign and retain a copy of the chain-of-custody after obtaining analytical laboratory custody signature. Custody procedures will then proceed according to the procedures of the selected testing laboratory.

9.4 Evaluation of Sampling Results

The analytical results from the sampling efforts will be summarized and evaluated. The raw data will be included as an appendix to the report submitted.

9.5 Analytical Methods and Parameters

The analytical laboratory will analyze the soil samples for dinoseb.

9.6 Field Quality Assurance/Quality Control Program

To attain the quality assurance objectives in terms of accuracy, precision, completeness, comparability and representativeness, the following requirements will be implemented in addition to the standard laboratory QA/QC measures:

a. One trip blank analysis will be performed to measure bias introduced by field, shipping and laboratory procedures.

b. The objective for completeness for this project is 90 percent for each medium, where the media is soil, ground water, etc.

c. Representativeness of the data will be assured by meticulous sampling and testing and not solely by statistical methods or duplicate analyses.

10.0 HEALTH AND SAFETY PLAN

The Health and Safety plan is presented in this document as Attachment 1. The plan has been developed to address the known potential hazards at the construction site at the Cedar Chemical facility near West Helena, Arkansas.

The health and safety guidelines and requirements presented are based on a review of available information and an evaluation of potential hazards which may be present during the work tasks anticipated by WCC and their subcontractors. This plan outlines the health and safety procedures and equipment required for activities at this site to minimize the potential for exposures to field personnel.

Work tasks conducted by other contractors may require an additional evaluation of potential hazards. The information presented in this plan may be used as guidelines for other contractors working at the site in preparation of their health and safety plan.

ATTACHMENT 1

HEALTH AND SAFETY PLAN
REMOVAL ACTION WORK PLAN
CEDAR CHEMICAL
WEST HELENA FACILITY

procedures which may constitute a part of this manual as an Addendum must also be complied with by all WCC employees, visitors and subcontractors.

2.0 SITE BACKGROUND

2.1 Site Location

The Cedar Chemical Company facility is located by the intersection of Arkansas Highway 242 and Industrial Park Road near West Helena, Arkansas. A drum burial area that has been uncovered is located about 500 feet east of the main office building.

2.2 Site History

During construction activities for the purpose of plant expansion, buried drums were uncovered. The drums were 6 to 12 feet below ground surface. Eight drums were removed upon unearthing. The drums have been analyzed and determined to contain DNBP. It has been determined that the drums were buried around 1972 when the plant manufactured DNBP and was operated by Ansul Corporation. DNBP or 2 (sec butyl) 4,6 dinitrophenol is no longer in use as a pesticide. It is still used as a diamine inhibitor in industrial processes, e.g., to deter polymerization of styrene in industrial processes.

2.3 Site Description

The drum burial area is approximately 15 feet from north to south and 60 feet from east to west and located in the southeast corner of the construction area for plant expansion.

3.0 KEY PERSONNEL

The following is a description of job responsibilities for this project:

3.1 Project Manager - Richard D. Karkkainen

For this project, the project manager has the following responsibilities:

- To see that the project is executed in accordance with the work plan and to safeguard the interests of Cedar Chemical.
- To see that the project is performed in a manner consistent with the WCC QA/QC program and health and safety program.
- To have an approved Health and Safety Plan prepared and properly implemented for this project.
- To provide the central operating group health and safety officer with project information related to health and safety matters and development of the Health and Safety Plan.
- To implement the Health and Safety Plan.
- To insure compliance with the Health and Safety Plan by WCC and contractor personnel.
- To coordinate with the central operating group health and safety officer on health and safety matters.

The project manager has the authority to take the following actions:

- To determine matters relating to schedule, cost and personnel assignments on hazardous waste management projects.
- To temporarily suspend field activities, if the health and safety of personnel are endangered, pending further consideration by the central

operating group health and safety officer or operating group health and safety officer.

- To temporarily suspend an individual from field activities for infractions of the Health and Safety Plan, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.

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The health and safety officer has the following responsibilities:

- To interface with the project manager as may be required in matters of health and safety.
- To develop a Health and Safety Plan for the project and to submit it to the corporate health and safety officer for approval.
- To appoint or approve a site safety officer to assist in implementing the Health and Safety Plan.
- To monitor compliance with the approved Health and Safety Plan.
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- To approve personnel to work on this site with regard to medical examinations and health and safety training.

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- To suspend work or otherwise limit exposures to personnel, if a health and safety plan appears to be unsuitable or inadequate.
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- To suspend work and notify Cedar Chemical security of unauthorized personnel entry into the site.

4.0 SCOPE OF WORK

4.1 Drum Handling

Drum handling activities will consist of unearthing the drums. The drums will then be removed and prepared for shipment. Drums in rusty or deteriorated condition compromising container integrity will require overpacking for shipment. Containers will require a characteristic analysis for disposal. Once these results are available, the containers will be labeled, manifested and shipped for offsite incineration.

4.2 Soil Removal

All soil surrounding the drums and contaminated by concentrations of DNBP greater than the standard established in the Interim Final RCRA Facility Investigation Guidance (EPA 530/SW-89-031) will then be excavated and placed in containers for disposal. The health-based standard for dinoseb in soil is 80.0 ppm. Characteristic analysis of the soil for disposal will also be required. Upon receipt of results, the containers will be labeled, manifested and shipped for offsite disposal.

4.3 Soil Sampling

After drum and soil removal, soil sampling will be performed. This sampling effort will establish the concentration of dinoseb remaining in the soil. The health-based standard for DNBP in soil is 80 ppm. This concentration will be the criterion to achieve the objective of this remedial effort.

ATTACHMENT 1

HEALTH AND SAFETY PLAN
REMOVAL ACTION WORK PLAN
CEDAR CHEMICAL
WEST HELENA FACILITY

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1.0 INTRODUCTION

This Health and Safety Plan has been developed to provide the health and safety guidelines which will be required to conduct field activities associated with the drum and soil removal and soil sampling at the Cedar Chemical facility near West Helena, Arkansas.

All employees of Woodward-Clyde Consultants (WCC) and WCC subcontractors involved in this project are required to abide by the provisions of this plan. They are required to read this plan and sign the attached Compliance Agreement. The information presented in this plan may be used only as guidelines to aid non-WCC employees/subcontractors in preparation of their own task-specific health and safety plans.

Each contractor is responsible for implementation of their company's health and safety plan and compliance with applicable OSHA regulations. The health and safety guidelines and requirements presented are based on a review of available information and an evaluation of potential hazards which may be present during the work tasks anticipated by WCC and their subcontractors. This plan outlines the health and safety procedures and equipment required for activities at this site to minimize the potential for exposures of field personnel.

Work tasks conducted by other contractors may require an additional evaluation of potential hazards. This plan may be modified by the WCC project manager with the approval of the central operating group health and safety officer in response to additional information obtained regarding the potential hazards to field investigative personnel.

All WCC employees, visitors, and their subcontractors, while on the jobsite, are required to comply with the provisions of this manual. Cedar Chemical's standard

procedures which may constitute a part of this manual as an Addendum must also be complied with by all WCC employees, visitors and subcontractors.

2.0 SITE BACKGROUND

2.1 Site Location

The Cedar Chemical Company facility is located by the intersection of Arkansas Highway 242 and Industrial Park Road near West Helena, Arkansas. A drum burial area that has been uncovered is located about 500 feet east of the main office building.

2.2 Site History

During construction activities for the purpose of plant expansion, buried drums were uncovered. The drums were 6 to 12 feet below ground surface. Eight drums were removed upon unearthing. The drums have been analyzed and determined to contain DNBP. It has been determined that the drums were buried around 1972 when the plant manufactured DNBP and was operated by Ansul Corporation. DNBP or 2 (sec butyl) 4,6 dinitrophenol is no longer in use as a pesticide. It is still used as a diamine inhibitor in industrial processes, e.g., to deter polymerization of styrene in industrial processes.

2.3 Site Description

The drum burial area is approximately 15 feet from north to south and 60 feet from east to west and located in the southeast corner of the construction area for plant expansion.

3.0 KEY PERSONNEL

The following is a description of job responsibilities for this project:

3.1 Project Manager - Richard D. Karkkainen

For this project, the project manager has the following responsibilities:

- To see that the project is executed in accordance with the work plan and to safeguard the interests of Cedar Chemical.
- To see that the project is performed in a manner consistent with the WCC QA/QC program and health and safety program.
- To have an approved Health and Safety Plan prepared and properly implemented for this project.
- To provide the central operating group health and safety officer with project information related to health and safety matters and development of the Health and Safety Plan.
- To implement the Health and Safety Plan.
- To insure compliance with the Health and Safety Plan by WCC and contractor personnel.
- To coordinate with the central operating group health and safety officer on health and safety matters.

The project manager has the authority to take the following actions:

- To determine matters relating to schedule, cost and personnel assignments on hazardous waste management projects.
- To temporarily suspend field activities, if the health and safety of personnel are endangered, pending further consideration by the central

operating group health and safety officer or operating group health and safety officer.

- o To temporarily suspend an individual from field activities for infractions of the Health and Safety Plan, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.

3.2 Health and Safety Officer - Bob Siener

The health and safety officer has the following responsibilities:

- o To interface with the project manager as may be required in matters of health and safety.
- o To develop a Health and Safety Plan for the project and to submit it to the corporate health and safety officer for approval.
- o To appoint or approve a site safety officer to assist in implementing the Health and Safety Plan.
- o To monitor compliance with the approved Health and Safety Plan.
- o To assist the project manager in seeing that proper health and safety equipment is available for the project.
- o To approve personnel to work on this site with regard to medical examinations and health and safety training.

The health and safety officer has the authority to take the following actions:

- o To suspend work or otherwise limit exposures to personnel, if a health and safety plan appears to be unsuitable or inadequate.
- o To direct personnel to change work practices, if they are deemed to be hazardous to health and safety of personnel.

- To remove personnel from the project, if their actions or condition endangers their health and safety or the health and safety of co-workers.

3.3 Site Safety Officer - Brett Smith

The site safety officer has the following responsibilities:

- To direct health and safety activities onsite.
- To report safety-related incidents or accidents to the project manager and central operating group health and safety officer.
- To assist the project manager in all aspects of implementing the Health and Safety Plan.
- To maintain health and safety equipment onsite, as specified in the Health and Safety Plan.
- To perform health and safety activities onsite, as specified in the Health and Safety Plan, and report results to the project manager and the central operating group health and safety officer.
- To limit access to the site to authorized personnel.

The site safety officer has the authority to take the following actions:

- To temporarily suspend field activities, if health and safety of personnel are endangered, pending further consideration by the central operating group health and safety officer or operating group health and safety officer.
- To temporarily suspend an individual from field activities for infractions of the Health and Safety Plan, pending further consideration by the central operating group health and safety officer.
- To suspend work and notify Cedar Chemical security of unauthorized personnel entry into the site.

4.0 SCOPE OF WORK

4.1 Drum Handling

Drum handling activities will consist of unearthing the drums. The drums will then be removed and prepared for shipment. Drums in rusty or deteriorated condition compromising container integrity will require overpacking for shipment. Containers will require a characteristic analysis for disposal. Once these results are available, the containers will be labeled, manifested and shipped for offsite incineration.

4.2 Soil Removal

All soil surrounding the drums and contaminated by concentrations of DNBP greater than the standard established in the Interim Final RCRA Facility Investigation Guidance (EPA 530/SW-89-031) will then be excavated and placed in containers for disposal. The health-based standard for dinoseb in soil is 80.0 ppm. Characteristic analysis of the soil for disposal will also be required. Upon receipt of results, the containers will be labeled, manifested and shipped for offsite disposal.

4.3 Soil Sampling

After drum and soil removal, soil sampling will be performed. This sampling effort will establish the concentration of dinoseb remaining in the soil. The health-based standard for DNBP in soil is 80 ppm. This concentration will be the criterion to achieve the objective of this remedial effort.

5.0 HAZARD EVALUATION

Chemical Hazards

- o Inhalation of low concentrations of organic vapors and particulate
- o Skin and eye contact with organic contaminants
- o Ingestion of organic contaminants

Physical Hazards

- o Heat stress
- o Noise

Biological Hazards

- o Mosquitos, snakes and fire ants

5.1 Chemical Hazards

Personnel may be exposed to chemical hazards through three routes of exposure: inhalation, skin and eye contact and ingestion.

Inhalation exposures may be present during the work activities. Substances listed in this section indicate allowable exposure limits for inhalation. These limits are intended as guidelines and should not be construed as fine lines between safe and unsafe conditions. Efforts will be made to keep concentrations as low as possible. These guidelines are concentrations of contaminants that most workers can be exposed to for a 40-hour work week on a permanent basis with out significant health effects.

The Permissible Exposure Limit (PEL) represents the standards promulgated by the Occupational Safety and Health Administration. The PELs may be promulgated for 8-hour time weighted averages (TWA) or short-term exposure limits (STEL).

Threshold Limit Values (TLV) are guidelines recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). TLVs may be recommended for TWA or STEL exposures.

Concentrations which are Immediately Dangerous to Life and Health (IDLH) represent the maximum level from which one could escape within 30 minutes without any impairing symptoms or irreversible health effects. IDLHs are not available for some contaminants and are not recommended for chemicals which are potential carcinogens.

Skin and eye contact with chemical hazards can cause serious burns, rashes or irritations. In addition, skin contact may increase internal body exposure through absorption. Chemicals with known skin contact hazards are indicated after the chemical name. All field personnel should report any skin or eye contact symptoms to their site safety officer and be treated as soon as possible by a physician.

Ingestion of chemical hazards will be controlled on this site by prohibiting any eating, smoking, or drinking in the immediate work area and by requiring all field personnel who become exposed to contaminants to decontaminate themselves upon leaving the work area.

The hazards present at the site have been identified by Cedar Chemical Corporation as Kerosene and DNBP, a pesticide no longer in agricultural use but with some use in industrial processes.

Table 5-1 and Appendix 3 lists specific chemical hazards of the aforementioned compounds.

TABLE 5-1

CONTAMINANTS POTENTIALLY PRESENT SUBSURFACE ENVIRONMENT

Chemical Name	Description	Exposure Limits	Hazard/Effects of Exposure
Dinoseb or Dinitrobutylphenol	Reddish-brown liquid, or Yellow to brown solid pungent, organic acid odor	ACGIH-TLV 0.3 mg/m^3 or 30 ppb	Poisonous, toxic, readily absorbed by skin. Possible fire risk. Strong Irritant.
Kerosene (Burner Fuel)	Pale Yellow or water-white, mobile, oily liquid; mild petroleum odor	NIOSH recommended 10 Hr TWA 100 mg/m^3 or 14 ppm	High vapor concentration or liquid contact can irritate eyes. Prolonged or repeated contact with skin can cause defalting, irritation and dermatitis.

Potential hazards may be minimized by protecting against exposures to contaminated soils by utilizing appropriate personal protective equipment. Personal protective equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories by the EPA (i.e., Level A., B, C and D) according to the degree of protection afforded.

The first step will consist of sampling of drum contents to characterize the waste for disposal. Due to the potential of skin absorption at dinoseb in solid and to a greater degree, polycoated Tyvek or equivalent has been selected to provide greater dermal protection than regular Tyvek. No respiratory protection will be used if air monitoring readings allow.

The second step consists of drum and soil removal. As the drums are handled for transport, dermal protection will be afforded by the use of polycoated Tyvek or equivalent. As the underlying surface will be removed by heavy equipment, no direct contact with the soil will occur. The use of regular Tyvek has been chosen for this field activity. No respiratory protection will be used if air monitoring readings allow.

The soil sampling will use regular Tyvek and no respiratory protection. Sampler exposure to potentially contaminated soil will occur only at the sampler's hands which will be gloved.

Field activities have been grouped by the levels of protection required and listed in Table 5-2.

TABLE 5-2

WORK ACTIVITIES ASSOCIATED WITH LEVELS OF PROTECTION

Drum Sampling and Drum Removal

Personnel/Activity	PPE Level
Samplers performing all other drum sampling	Modified Level D with Polycoated Tyvek or equivalent
Laborers and operators performing drum removal	Modified Level D with Polycoated Tyvek or equivalent
Decontamination	Modified Level D with Polycoated Tyvek or equivalent
All others	Level D

Soil Removal and Soil Sampling

Personnel/Activity	PPE Level
Laborers and operators performing soil removal	Level D
Samplers performing soil sampling after soil removal	Level D
Decontamination	Level D
All others	Level D

5.2 Physical Hazards

Personnel should be cognizant of the fact that when protective equipment such as respirators, gloves, and protective clothing are worn, visibility, hearing, and manual dexterity are impaired. Personnel involved in drum handling activities should be aware of hazards associated with working around heavy equipment.

- Heat Stress

Protective equipment required for some activities, including coveralls and respirators, places a physical strain on the wearer. Heat exhaustion and heat stroke are possible, especially during warm weather. The risk of heat illness is especially high for workers wearing chemical protective clothing. The body temperature is normally maintained in a safe range by evaporative cooling. Humidity, air movement and air temperature all affect the sweat evaporation rate and resultant cooling. Impervious suits greatly reduce the potential for perspiration to evaporate.

The normal heat stress index involves use of an index that incorporates dry bulb air temperature, wet bulb air temperature (which is influenced by humidity and air movement) and radiant heat. The index used is referred to as WBGT. The Threshold Limit Values for heat stress are based on the formula:

> WBGT = 0.7 natural wet bulb + 0.2 globe temperature + 0.1 dry bulb temperature

The TLV limits are based on a combination of work load, WBGT temperature in degrees centigrade and the work/rest regimen. The values may be seen in Table 5-3.

The WBGT index specifically is for workers in normal clothes and must not be applied directly for workers in impervious suits. The chemically protective suits are estimated

to add between 6° and 11° C to the WBGT index (AIHA Journal, May 1987). The use of personal cooling devices (ice vests, etc.) for employees not working in environmentally controlled (air conditioned) areas will be a main heat stress reduction technique and will make the WBGT table more applicable to the anticipated work conditions.

If in the opinion of the Health and Safety Officer heat stress monitoring is appropriate, it will be performed. The high heat and humidity which may be present at this project may require WBGT monitoring whenever the ambient temperature exceeds 70° F or 21° C. The instrument used will be a Reuter-Stokes RSS-212 Portable Heat Stress Monitor or equivalent.

Heat stress testing (as stated in Appendix 1, the heat stress casualty prevention plan) for site employees wearing impermeable clothing may begin when the WBGT temperature reaches 75° F or 24° C. The TLV WBGT schedule for work/rest is the recommended standard. The Site Safety Officer will evaluate the results of heat stress testing provided (heart rates, oral temperature, body weight change) to determine if rest period modifications are required. Fluids will be provided on site in order to maintain body fluid levels of the field personnel. Where feasible, worker rotation into positions of less heat stress should be done to limit worker fatigue. All rest areas will be environmentally controlled (approximately 76° F).

TABLE 5-3

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES
(VALUES ARE GIVEN IN ° C WBGT)

	Work Load		
Work/Rest Regimen	Light*	Moderate**	Heavy***
Continuous work	30.0	26.7	25.0
75% Work - 25% Rest, each hour	30.6	28.0	25.9
50% Work - 50% Rest, each hour	31.4	29.4	27.9
25% Work - 75% Rest, each hour	32.2	31.1	30.0

* Light work — Sitting or standing to control machines, performing light hand or arm work (up to 200 Kcal/hr or 800 Btu/hr)

** Moderate work — Walking about with moderate lifting and pushing (200 to 350 Kcal/hr or 800 to 1400 Btu/hr)

*** Heavy work — Pick and shovel work (350 to 500 Kcal/hr or 1400 to 2000 Btu/hr)

o Noise

Noise hazards may be present from process equipment, maintenance activities or heavy equipment operations. Personnel exposed to noise levels in excess of permissible noise exposures as defined by 29 CFR 1910.95 shall be protected. Where feasible, administrative or engineering controls shall be utilized. If control measures are not effective and until controls are implemented, personnel shall wear approved personal protective equipment in the form of ear plugs or muffs.

Personnel who are exposed to a time weighted average of greater than 85dBA shall be required to participate in a hearing conservation program as defined by 29CFR 1910.95.

5.3 Biological Hazards

Mosquitoes, fire ants and snakes have been identified as biological hazards. Care should be taken not to move through tall grass or around vegetative deadfall without

inspecting placement of feet. Ant hills could be encountered or snakes as well. A First Aid Kit will be available to administer to insect bites or snake bites.

6.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

6.1 Medical Examination

All personnel working on site must take an annual medical examination as part of a medical surveillance program as required in CFR 29 Part 1910. Contractors involved in hazardous field activities shall provide for medical examinations for their employees. Physicians opinions on all workers will be submitted to the Site Safety Officer prior to starting work. Personnel with jobs of short duration (2 to 4 hours) who are fully escorted may be exempted from the physician's opinion requirements at the discretion of the Site Safety Officer and the WCC project manager.

6.2 Safety Training Documentation

Once operations have begun, all personnel working on site will supply certificate or equivalent attesting to completing 40 hours of required training per OSHA 1910.120. Site supervisors will be required to supply a certificate indicating that an additional 8 hours of training has been completed. Escorted visitors may be allowed in the restricted area without 40 hours training at the discretion of the Site Safety Officer and the WCC project supervisor.

6.3 Compliance Agreement

The Site Safety officer shall hold meetings with all field personnel before work commences. During the meeting, the plan shall be reviewed and discussed and questions answered. Signed Compliance Agreement Forms and Safety Orientation Forms shall be filed by the Site Safety Officer. Individuals refusing to sign the form will not be allowed to work on the site.

6.4 Site Entry Notification

Cedar Chemical Corporation, contractors, and subcontractors shall provide a written list of their employees who will be entering the site for approval prior to actually entering the site. All other personnel must inform the WCC Project Manager or his representative before entering the site; appropriate escorting will be provided. Cedar Chemical personnel may be on site whenever work is performed. Personnel must be in visual contact with each other or carry two-way radios during all field activities.

If any unidentified potential hazards are discovered during any field work, the Project Manager or his designated representative will be called for further instructions.

6.5 Site Safety Meetings

During field operations, daily safety meetings will be held by the Health and Safety Representative to review and plan the specific health and safety aspects of scheduled work for that day.

6.6 Prohibitions

- Smoking, eating, drinking, chewing gum or tobacco, storing food or food containers shall not be permitted on the work site. Good personal hygiene should be practiced by field personnel to avoid ingestion of contaminants or spread of contaminated materials.
- Ignition of flammable liquids within, on, or through improvised heating devices or space heaters
- Approach or entry into areas or spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment available to enable safe entry.
- Conducting on site operations within waste handling zone without back up personnel in the non-contaminated staging area.

6.7 Incident Reporting

Any incident or accident involving personnel on site will require that an Incident/Accident Report be filed. Situations, no matter how minor, covered by this policy include but are not limited to fires, explosions, illnesses, injuries, and automobile accidents. These reports must be sent to the employee's Health and Safety Representative. Worker's Compensation Insurance reports should be filed within 48 hours of each accident or illness which results from work related activities and requires medical attention. See Appendix 2 for an example of Hazardous Waste Incident Report. Use this form in case of an accident or incident.

6.8 Project Safety Log

Project logs will be used to record the names, entry and exit dates and times of all personnel and of project site visitors; accidents, injuries, and illnesses; incidences of safety infractions by field personnel; air quality and personal exposure monitoring data; and other information related to safety matters. All accidents, illnesses or other incidences shall be reported immediately to the Site Safety Officer and the WCC Project Manager or his representative.

6.9 Safety Equipment Required

Potential hazards from contaminants may be minimized by protecting against exposures to toxic materials by utilizing appropriate personal protective equipment. Personal protective equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories by U. S. EPA (i.e., Level A, B, C and D) according to the degree of protection afforded.

All personnel engaged in activity at the site will employ the following basic personnel protective equipment:

- Safety glasses

- o Hard hat
- o Boots with steel toes
- o Chemical splash goggles

Personnel shall wear the first three items at all times except in designated locations, and shall have the goggles readily available at all times.

Because of the possibility that respiratory protection may be necessary, all subcontractors and their employees must submit documentation indicating that proper fit has been demonstrated for specific models of air-purifying respirators.

Level A protection should be worn when the highest level of respiratory, skin and eye protection is needed. The protective equipment for Level A include:

- o Pressure-demand, self-contained breathing apparatus (SCBA), approved by the Mine Safety and Health Administration (MSHA) and National Institute of Occupational Safety and Health (NIOSH)
- o Fully encapsulating chemical-resistant suit
- o Gloves (outer), chemical-resistant; viton, nitrile, PVC or neoprene
- o Boots, chemical-resistant
- o 2-way, intrinsically-safe radio

Level B protection should be employed when the highest level of respiratory protection is needed but a lesser level of skin protection is required. The equipment for Level B protection includes:

- o Pressure-demand (self-contained) breathing apparatus (SCBA) or pressure-demand supplied air respirator with escape SCBA (including 5 minute bottle)(MSHA/NIOSH approved)
- o Chemical-resistant clothing with hood; disposable Tyvek Saranex
- o Gloves (outer), chemical-resistant; viton, nitrile, PVC or neoprene
- o Boots, chemical-resistant

- o 2-way, intrinsically-safe radio

Level C protection is selected when the types of airborne substance(s) is known, the concentration(s) is measured and the criteria for using air purifying respirators are met. Level C protective equipment include:

- o Full-face or half-face, air purifying, cartridge-equipped (organic vapor/acid gas and particulate) respirator (MSHA/NIOSH approved)
- o Chemical-resistant clothing; such as disposable polycoated Tyvek
- o Face shield, if half-face respirators are used
- o Gloves (outer), chemical-resistant; viton, nitrile, PVC or neoprene
- o Boots, chemical-resistant;

Modified Level D provides for dermal protection, but no respiratory protection.

- o Chemical-resistant clothing; such as polycoated Tyvek
- o Gloves, chemical-resistant; viton, nitrile, PVC or neoprene
- o Face shields where splash hazards are present
- o Boots, chemical-resistant
- o Safety glasses with side shields
- o Hard hat

Level D protection includes:

- o Chemical-resistant clothing; such as disposable Tyvek
- o Gloves, chemical resistant; viton, nitrile, PVC or neoprene
- o Boots, chemical resistant

The protection levels which have been selected are based on the hazard evaluation (Section 5.0) and may be revised based on field measurements during field activities.

Therefore all subcontractors and their employees must provide the documentation of the following:

- o Annual medical examination with favorable physician's opinion for hazardous waste work
- o OSHA 40-hour training for hazardous waste work activities
- o Annual 8-hour refresher training for hazardous waste work activities as applicable
- o Air-purifying respirator fit-test

6.10 Work Zones

To minimize the movement of contaminants from the site to uncontaminated areas, three work zones will be set up after the site assessment and prior to the removal action and sampling of drums. The three work zones will include the following:

Zone 1: Exclusion Zone
Zone 2: Contamination Reduction Zone
Zone 3: Support Zone

The exclusion zone is the zone where contamination does or could occur. The exclusion zone will be defined initially by a 20-foot area around the drums. Air monitoring and observation by the site safety officer will determine the extent of the zones. All persons entering this zone must wear the level of protection set forth in Section 5.0, Hazard Evaluation. These levels of protection guidelines are based on the different types of field activities.

Between the exclusion zone and support zone is the personnel contamination reduction zone (CRZ) which provides a transition zone between the contaminated and clean areas of the site. This zone will be located directly outside of the exclusion zone and will be defined as a 10-foot zone directly outside the exclusion zone.

The support zone will be an uncontaminated area from which operations will be directed. It is essential that contamination from the site be kept out of this area. Included in this area will be a storage area for decontaminated clothing, personal protective equipment and some personal clothing, such as shoes.

6.11 Equipment Decontamination

The equipment decontamination procedure will be conducted using a steam cleaner. Decontamination will be done prior to project site arrival. Decontamination will take place in the field by washing directly above drums or temporary decon area set up by the subcontractor in the BSC area (See Figure 2). Decontamination fluids will be collected in drums and disposed by Cedar Chemical.

Decontamination facilities must be adequate in size to handle the largest piece of contaminated equipment, for example, the blade of a bulldozer.

6.12 Personnel Decontamination

All personnel will be required to undergo decontamination when leaving the exclusion zone.

The following steps must be taken for decontamination of personnel:

- Deposit equipment that needs to be decontaminated on plastic drop cloths.
- Wash suits, boots and outer gloves with long handled brushes in No. 3 wash tub containing detergent water.
- Rinse suits, boots and outer gloves with long handled brushes in a No. 3 wash tub containing clear water or use a sprayer to rinse off boots and gloves if one is available.

Coveralls should be removed by turning the clothing inside out. A general sequence of doffing procedures is outlined below. The extent of washing required, or modifications to the sequence, may be specified as appropriate.

Steps in decontamination will be as follows:

- o Wash and rinse outer protective coverall
- o Wash work gloves and boots
- o Remove outer protective clothing
- o Rinse respirator
- o Wash hands and face

Any contaminated protective clothing will be properly disposed of in sealable containers. Provisions for emergency decontamination will be available in the construction zone. For example, clean water will be provided for decontamination of personnel (to rinse work gloves and boots, etc.), in the event of an emergency situation. Potable water must be used for personal decontamination. Personnel decontamination will take place in the field. Decontamination fluids will be placed in drums provided by Cedar Chemical.

7.0 LABORATORY CONSIDERATIONS

7.1 Field Sampling

WCC will conduct field sampling as required by the work plan. Additional information regarding field sampling considerations may be presented in an Addendum to this plan.

8.0 PERSONAL PROTECTIVE EQUIPMENT

This section outlines the general usage guidelines for personal protective equipment.

8.1 Head Protection

Hard hats must be worn by all personnel working onsite.

8.2 Eye Protection

Safety glasses must be worn by all personnel performing activities at all times. Safety goggles will be carried by all personnel at all times and worn as necessary. An eyewash station will be set up by the site safety officer prior to commencing field activities and should be placed so that it could be used quickly in an emergency. Faceshields will be worn by all personnel in Level C not protected by full face respirators when splash hazards are present.

8.3 Skin Protection

Chemically-resistant coveralls are required and gloves must be worn by all personnel engaged in waste-related activities at the site. Where hoods are required,they can be either attached to, or separate from, the coveralls. Used disposable items may be re-used after decontamination provided they are not torn or breeched and show no signs of fabric contamination. Disposable items will be disposed of in a designated sealable container after each use or when they become worn or punctured. Non-disposable items will be decontaminated after each use and disposed of in a designated sealable container when they become worn or punctured.

8.4 Foot Wear

Chemically resistant boots will be worn by field personnel engaged in all field activities at the site.

8.5 Respiratory Protection

For work zones requiring Level A or B protection, the following NIOSH-approved equipment will be provided: pressure-demand, full-face piece, self-contained breathing apparatus (SCBA), or pressure-demand supplied air respirator with escape SCBA (in-line, 5 minute bottle) must be used by all personnel engaged in Level A or B work activities at the site. After use, all respiratory protective equipment must be taken to the decontamination and repair station. No facial hair will be allowed that will interfere with mask fit.

For Level C work, the following protective equipment will be provided: respirators, full-face or half-face mask, with organic vapor/acid gas and dust air purifying cartridges must be worn by all personnel engaged in all activities in the affected area. All personnel must be fit-tested for the specific brand of respirator to be used. The Contractors shall be responsible for fit testing their employees and shall provide proper records of the fit tests to the Site Safety Officer. A respirator which has not been successfully fit-tested cannot be used by an individual on the project. To ensure a proper fit, no facial hair will be allowed that will interfere with mask operation. Air purifying respirators will be used only if the following conditions are met:

- The oxygen content of the air is greater than 19.5 percent
- Concentrations of air contaminants are known and monitored.
- Most of the contaminants of concern all have good warning properties (i.e., odor threshold below TLV value).
- The protection factor is adequate and TLVs are not exceeded
- If concentrations of air contaminants exceed IDLH value, personnel must immediately evacuate.
- Cartridges are changed daily or whenever breakthrough occurs, whichever occurs first.
- Each person has been fit-tested for the specific brand and size of respirator used.
- The respirator is MSHA and NIOSH approved.

9.0 AIR QUALITY MONITORING DURING REMOVAL ACTION

The primary goal of onsite air quality monitoring will be compliance with the specified contaminant action levels. The secondary goal will be documentation of personal exposures as required by OSHA 1910.120.

9.1 Responsibility/Authority

The Site Safety Officer (SSO) is responsible for implementation of the air monitoring program. The SSO must insure adequate instrumentation availability, proper calibration, proper field measurement techniques and recording of instrument response in the safety log book.

When action levels are exceeded, the SSO will communicate the required actions to the WCC project manager. In an emergency situation, the SSO may directly initiate an area evacuation.

Personal air monitoring results are required by OSHA to be communicated to the workers potentially exposed. A system of providing air sample results to workers will be coordinated.

9.2 Air Monitoring Zones

Air monitoring will be the key factor in determining the size of the Level B, C and D exclusion zones. Two separate sets of action levels have been developed. One set of action levels summarized in Table 9-1 is for work areas within the Level B zone. A second set of action levels summarized in Table 9-2 represents maximum levels in the C and D zones at the perimeter of the Level B zone. If these perimeter action levels are exceeded, the Level B exclusion zone will be expanded.

9.3 Air Quality Monitoring Instrumentation

The HNu PI 101 Photoionization Meter equipped with a 10.2 eV probe will be used to detect trace concentrations of certain organic gases and a few inorganic gases in the air. The HNu is most sensitive to aromatic hydrocarbons, aliphatic amines, and unsaturated chlorinated hydrocarbons. Carbonyl and unsaturated hydrocarbons, sulfides, ammonia, and the heavier paraffins (C_5 - C_7) can also be detected, but with a lesser degree of sensitivity. Methane, ethane and other light paraffins are not detected by the HNu.

Dust concentrations in the construction area will be monitored with a GCA Mini Ram or equivalent instrument. Response to particulate fugitive dust concentrations will be as follows:

TABLE 9-1
AIR MONITORING ACTION LEVELS FOR LEVEL B WORK AREAS

DRUM SAMPLING AND DRUM REMOVAL

Instrument	Instrument Reading	Action Taken
HNu PI 101 with 10.2 eV Probe	50 - 250 ppm	Continue Working
	>250 ppm	Evacuate Area

SOIL REMOVAL AND SOIL SAMPLING

Instrument	Instrument Reading	Action Taken
HNu PI 101 with 10.2 eV Probe	50 - 250 ppm	Continue Working
	>250 ppm	Evacuate Area

RESPONSE LEVEL 1

Name	Action Concentration	Field Actions
Particulates	1 mg/m^3	o Wear Level C Protection o Continue work and monitoring in immediate area o Take action to supress dust - Spray exposed areas with water

RESPONSE LEVEL II

Name	Action Concentration	Field Actions
Particulates	10 mg/m^3	o Suspend work activities o Take action to suppress dust as above in Response Level I o Move area personnel upwind of source o Resume work when action concentration is no longer exceeded in immediate area

TABLE 9-2

AIR MONITORING ACTION LEVELS FOR LEVEL C AND D WORK AREAS*

DRUM SAMPLING AND DRUM REMOVAL

Instrument	Instrument Reading	Action Taken
HNu PI 101 with 10.2 eV Probe	Background - 10 ppm	Modified Level D
	10 - 100 ppm	Continue Working, Upgrade to Level C
	>100 ppm	Evacuate Area or Implement Level B Work Zone Requirement

Instrument	Instrument Reading	Action Taken
HNu PI 101 with 10.2 eV Probe	Background - 10 ppm	Level D
	10 - 100 ppm	Continue Working Upgrade to Level C
	>100 ppm	Evacuate Area

* These levels must not be exceeded at edge of Level B work zones.

10.0 EMERGENCIES/ACCIDENTS

There is risk associated with injury resulting from contact with the drums and operation of heavy equipment. All personnel should be aware that the protective apparel (Level C, D) limits visibility, hearing, and manual dexterity. In addition, the protective equipment places a physical strain on the wearer, especially in warm weather.

Any illness, injury or accident occurring onsite must be attended to immediately. The WCC site supervisor shall implement the following procedures where and when appropriate.

- The WCC site supervisor should stop site work and determine appropriate actions.
- Decontaminate and move any affected personnel to safety from the immediate hazard.
- Determine the nature of the emergency and the type of assistance needed, for example fire equipment, or medical help.
- Contact the West Helena Fire Department, West Helena Municipal Police or hospital emergency ambulance service if emergency assistance is needed.

- o Report the incident to the Cedar Chemical representative and to the site safety officer.
- o Complete a WCC-Hazardous Waste Incident Report, using Form HS-502 (Appendix 2).
- o Develop procedures to prevent a reoccurrence of the illness, injury or accident and submit the procedures to the WCC Project Manager and project health and safety officer.

Emergency telephone numbers:

Helena Regional Medical Center	338-5900
Emergency Ambulance Service	572-9227
West Helena Fire Department	572-7911
West Helena Municipal Police Department	572-3441

11.0 HEALTH AND SAFETY MANUAL APPROVAL

Richard D. Karkkainen
WCC Project Manager

Date

Francis R. Siener, Jr., C. I. H.
Baton Rouge Health and Safety Officer

Date

Phil Jones, C. I. H.
WCC Corporate Health and Safety Officer

Date

12.0 HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

I, _____ (print name), have reviewed a copy of the Health and Safety Plan for the Drum and Soil Removal and Soil Sampling at Cedar Chemical Corporation (90B550C-3). I understand it and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the plan.

Signed:

_____ _____
(Signature) (Date)

Firm: _____